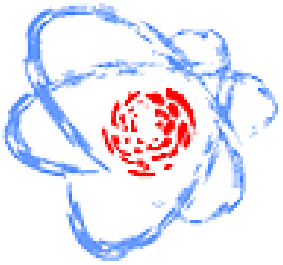

Contribution ID: **3** Type: **not specified**

Rotating Black Holes in Extended Theories of Gravity: Constraints Using EHT Data

Monday 9 June 2025 13:50 (10 minutes)

Using an improved version of the Newman-Janis algorithm, we obtain metrics of rotating black holes for a set of extended gravity theories that extend general relativity in different ways: the Horndeski model, the bumblebee model, the Gauss-Bonnet scalar gravity, the loop quantum gravity, the conformal gravity, and $f(Q)$ (symmetric teleparallel gravity STEGR). The obtained metrics are used to model black hole shadows. It is shown that for some models the critical values of the angular momentum a_{crit} emerge. The previous conclusion that the extended gravity theory corrects by itself the effects of rotation in both directions is confirmed. This appears to be important for further modelling of shadow profiles taking into account the constantly increasing accuracy of black hole images. Thus, when rotation is taken into account black hole shadow images, as the GW170817 test or the post-Newtonian formalism, can serve as a meaningful way to test and constrain extended theories of gravity.

Summary

Presenter: ZENIN, Oleg (Lomonosov Moscow State University, Faculty of Physics, Department of Quantum Theory and High Energy Physics)

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